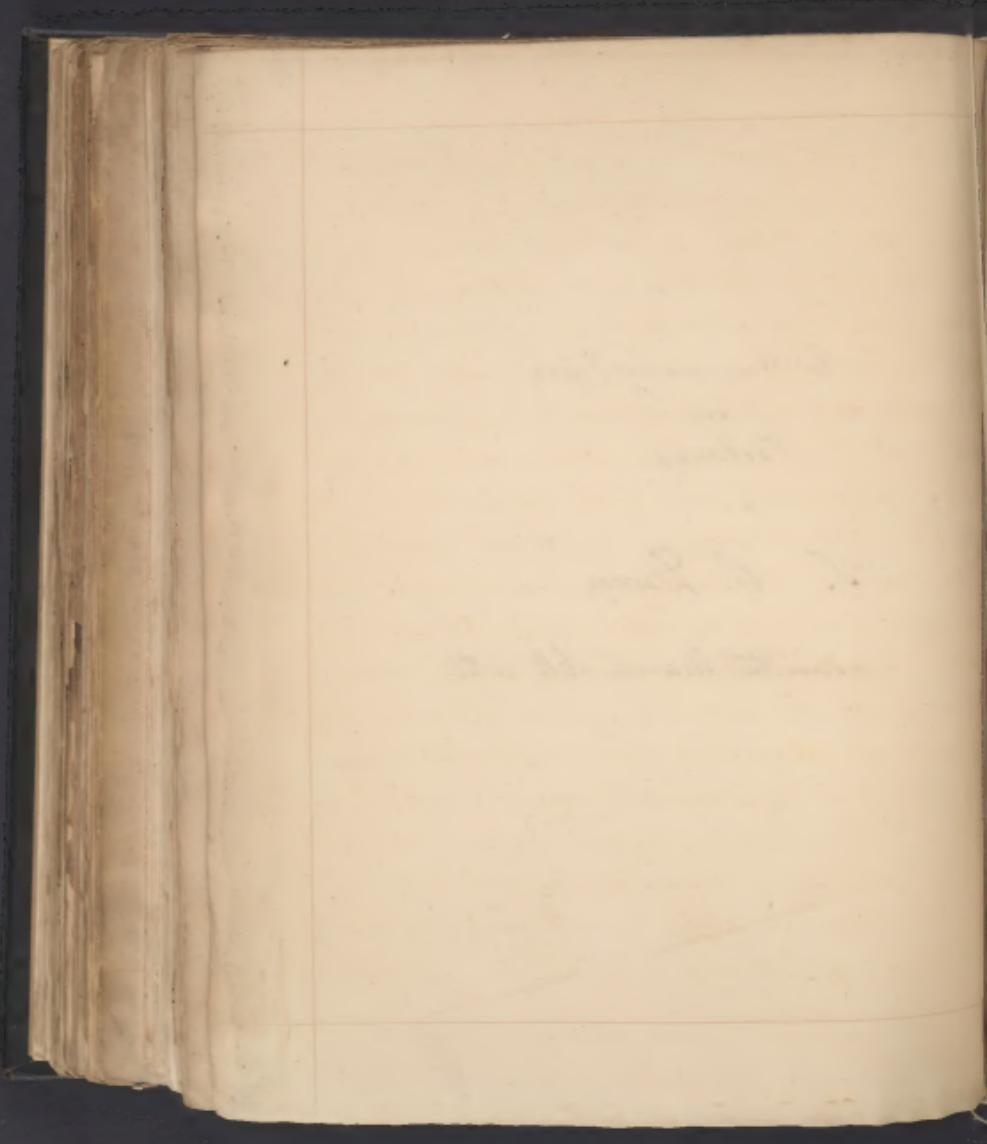


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An Inaugural Essay
on
Tetanus.

T. C. Dunn

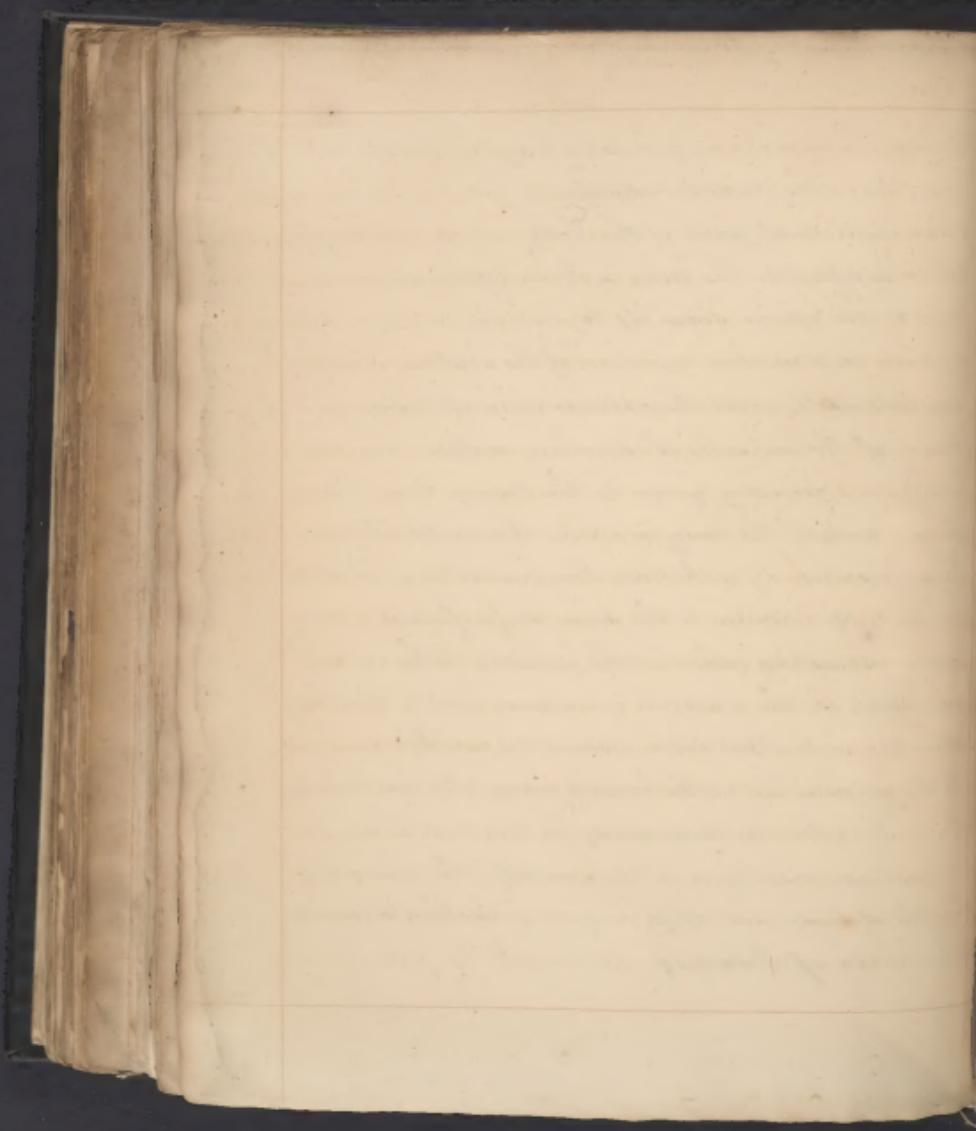
admitted March 16th 1821.



No. 55

On Titanus

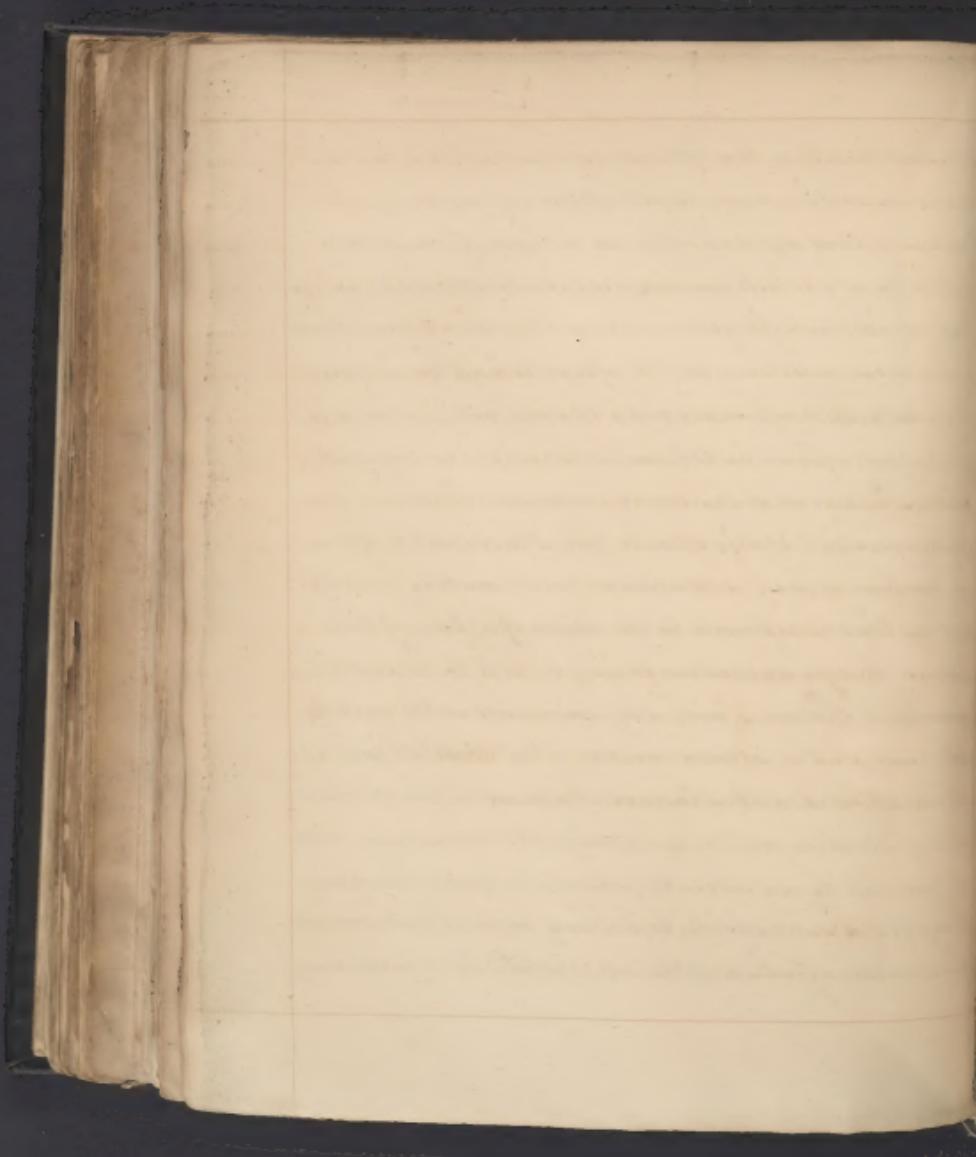
Titanus is a name now generally adopted to designate a peculiar constitutional disease; without reference to any individual part of the body, which may be particularly affected. The term is derived from a greek word τιταν which signifies to stretch, and is correctly applied to a morbid condition of the system which presents itself under the exterior form of tension or spasm of the muscles of voluntary motion. Various names were formerly given to the disease from the different parts of the body in which it was developed. Thus Trismus, Opisthotonus, Emprosthotonus, Pleuro-thotonus &c &c referred to the same kind of spasmodic action, as existing either in the muscles of the neck & lower jaw, in the posterior or anterior part of the body or in the sides. But these distinctions neither connected with any peculiar pathological principles, nor relating to any particular indications in practice, have been almost universally rejected; and all the varieties of the disease are now properly included under the name of Titanus.



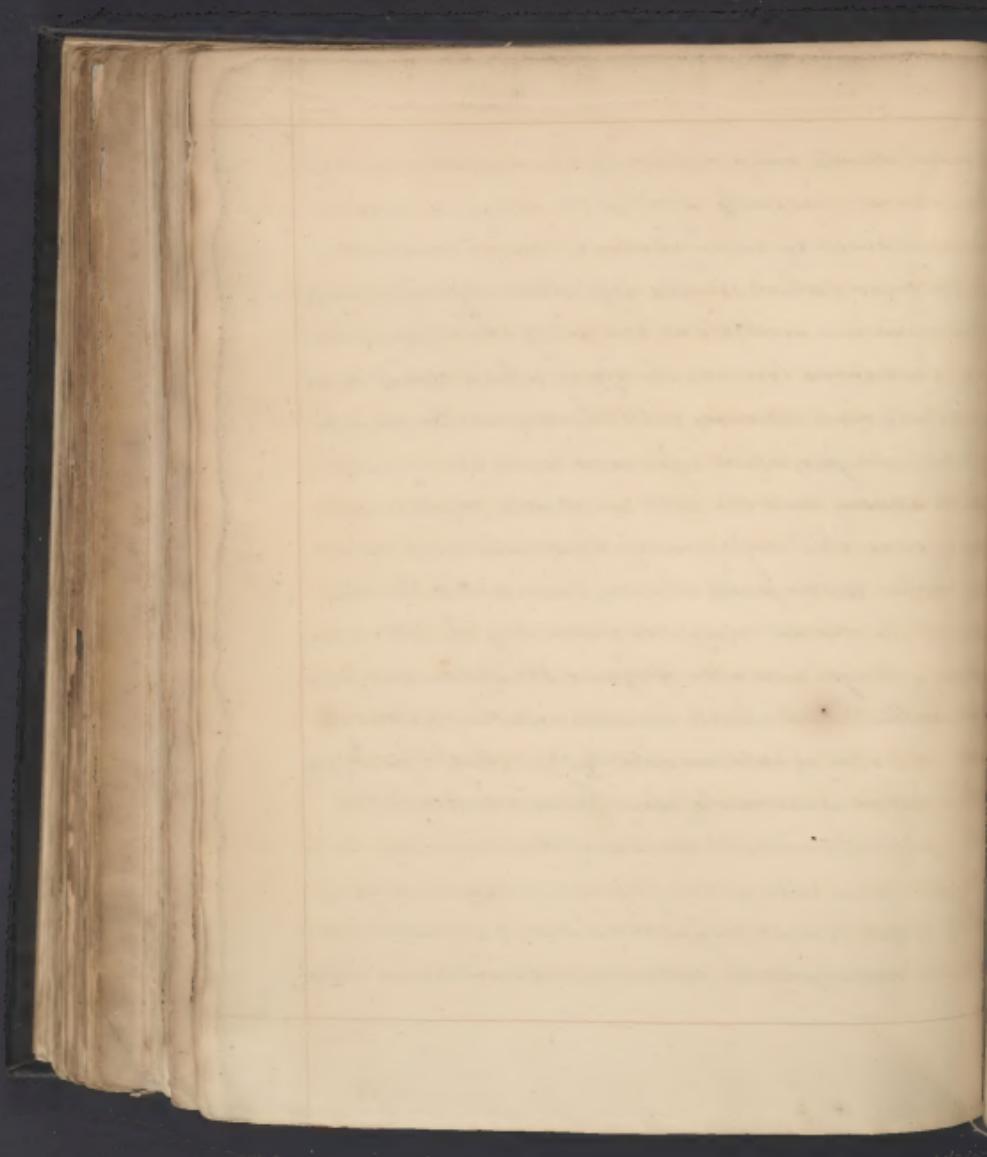
Polanus has been long known, and is described by the
antients, with a considerable degree of accuracy.

Persons of every age and either sex are liable to an attack,
but those of a robust and vigorous constitution, and mature
age are its most frequent victims. Climate appears to have
a material influence in the production of this disease.

In cold and temperate regions its occurrence is compara-
tively rare, whilst in tropical climates it is frequently
met with. Great irregularity occurs in the time of the
commencement of the disease from the reception of the
impression which is considered as the exciting cause;
but as this is referable to the degree of action of the
predisposing and exciting causes, it will be hereafter
considered. Tetanus generally commences with rigidity
and pain in the extensor muscles of the neck. At first it
is not attended with spasmody~~c~~ action, but the attention
of the patient is excited by a disagreeable sensation, which
is produced by an attempt to turn the head. In many
cases this is supposed to be nothing more than a common
lummatick affection of the neck; until the recurrence of



spasm, attracts notice and excites alarm. At this period of the disease uneasiness is felt at the root of the tongue, accompanied by an unpleasant sense of constriction of the fauces, which renders deglutition difficult & painful. Severe pain is soon felt at the pit of the stomach, shooting backwards towards the spine, which comes on at intervals and increases with the disease. The muscles of the lower jaw, which before were rigid, are now seized with spasm, and the teeth are drawn together with great force. Not unfrequently, the spasmodick action is limited to the parts already enumerated. In this case if the disease terminate favourably, the intermissions become longer and more frequent, the spasm and pain gradually, though slowly, subside, and the patient is left in a state of extreme debility. But alas! this happy termination is extremely rare. In most instances the pain augments with the duration of the disease, and the spasms return with greater frequency and increased force. The system cannot long withstand such repeated and forcible attacks, and the patient is soon seen to sink appa-

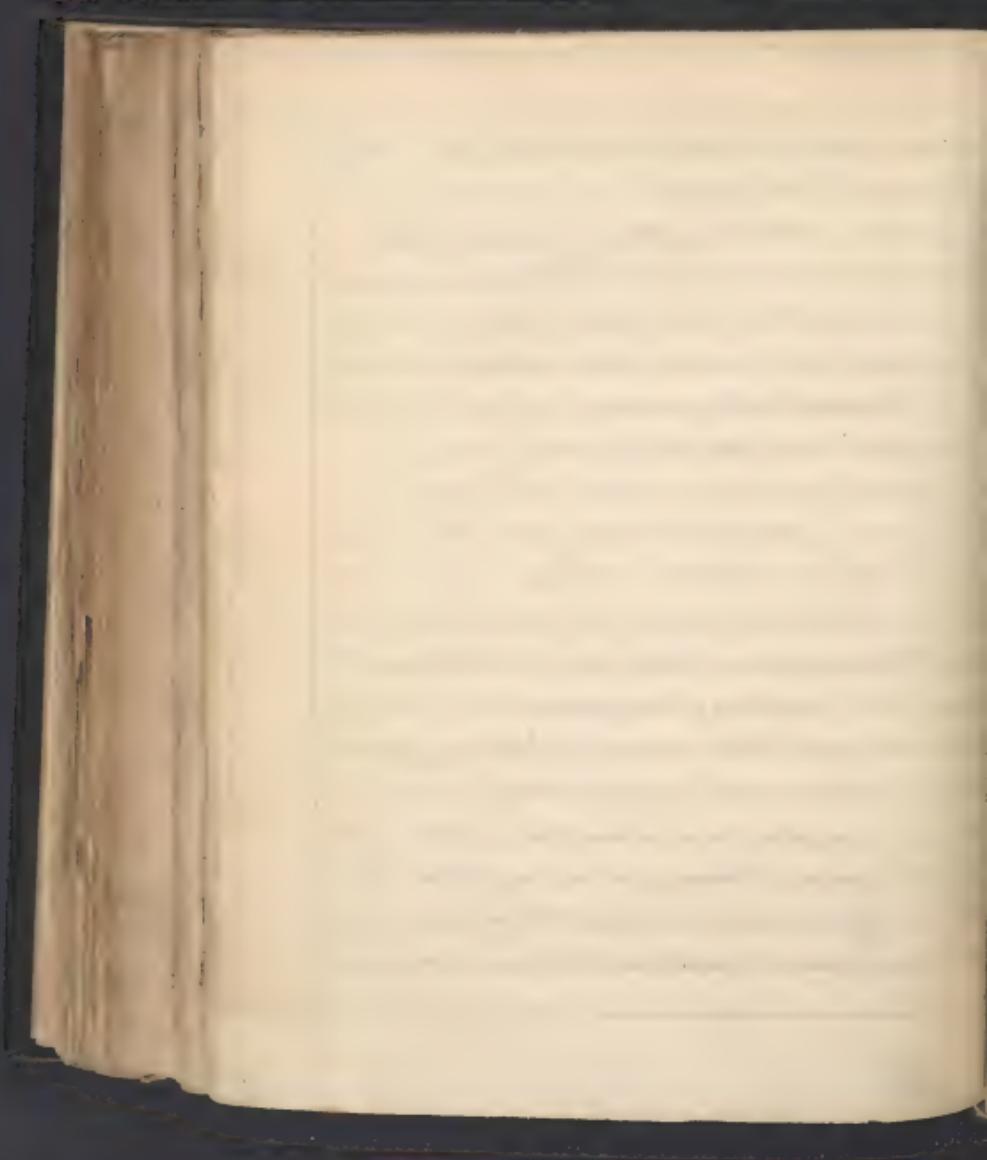


untily from excessive irritation. Where the extent of the disease is increased, the progress and termination are somewhat different. The muscles of the back soon take in spasmodick action; the belly is retracted and feels firm hard and the whole trunk is rigidly extended. The two extremities are next affected, sometimes the flexors of the leg and thigh are contracted, and the knees are drawn up to the body, but this action is generally balanced by the extensors, and the trunk and inferior extremities are extended and rigid. Soon the whole system of voluntary mus-
is acquires more or less tetanic rigidity. The face is often violently distorted and the countenance exhibits the most ghastly grinning, and the tongue is often thrust out violent-
ly between the teeth. When the spasm has thus become universal the patient commonly expires in convulsions. His disease throughout its whole course is attended with great pain which is proportioned to the duration and violence of the spasm. The muscular action generally lasts two or three minutes, when it remits and returns again in the course of ten or fifteen minutes.

Death occurs at very different periods in this disease according to the severity of the attack. It sometimes takes place on the first, second, or third day, though frequently life is prolonged till the tenth or later. Dr. Parr has remarked that if in an adult the pulse by the fourth or fifth day does not reach 100 or perhaps 110 in a minute, he believes the patient almost always recovers; if on the contrary the pulse is 120 or more the case is generally fatal.

Notwithstanding the extreme violence of this disease, the arterial system is generally but little affected. In perhaps the majority of cases the pulse continues natural, and there occurs little derangement of the assimilating functions. The brain appears seldom to suffer in Totanus, the mental powers remaining unimpaired, and sensibility exists until death. Few discoveries of the effects of the disease have been made on examination after death.

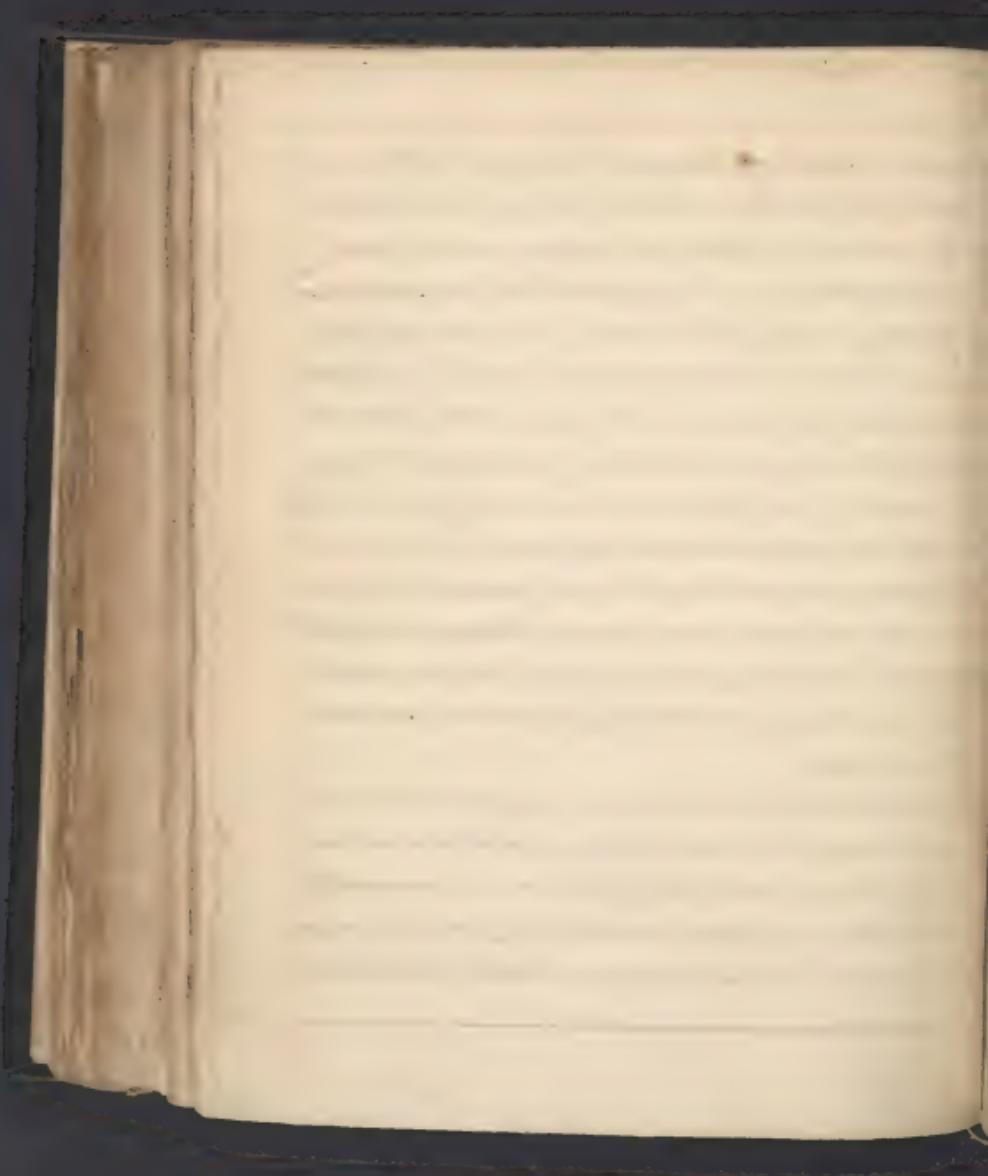
The nervous system however has often exhibited traces of inflammation. Portions of nerves supplying the muscles most affected have displayed the effects of irritation; dark purple spots have also been observed in



in different parts. The whole of the medulla spinalis in some cases has exhibited these effects in a greater or less degree. The blood has sometimes been found not coagulated but fluid like molasses.

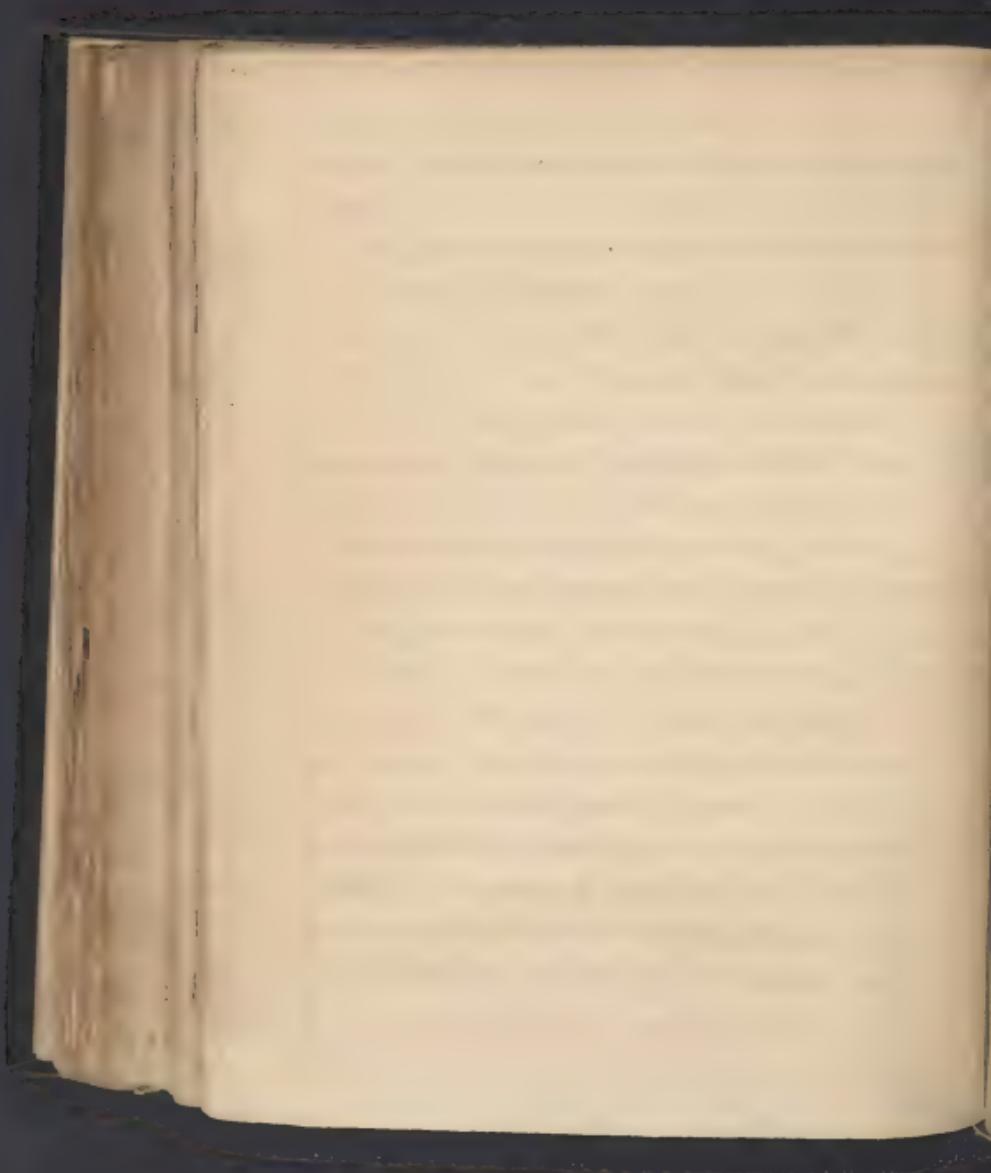
A great variety of causes has been supposed to produce a dissolution in the system favourable to Tetanic action. The vicissitudes of heat and cold, fatigue, repletion and wanton, debility of the skin, air and intestines and many circumstances of a like nature no doubt have their influence. But from many facts we are inclined to believe that without a peculiar constitutional irritability all these would be insufficient. We are therefore inclined to transfer them from the list of predisposing causes to the exciting.

The existence of a predisposition to specifick disease is unquestionable. And in Tetanus we believe that ordinary irritants excite an action of which particular constitutions alone are susceptible. This disease is most prevalent in southern climates where sudden transitions from heat to cold are not so common as they are with us; but in these countries the constitution is much more irritable

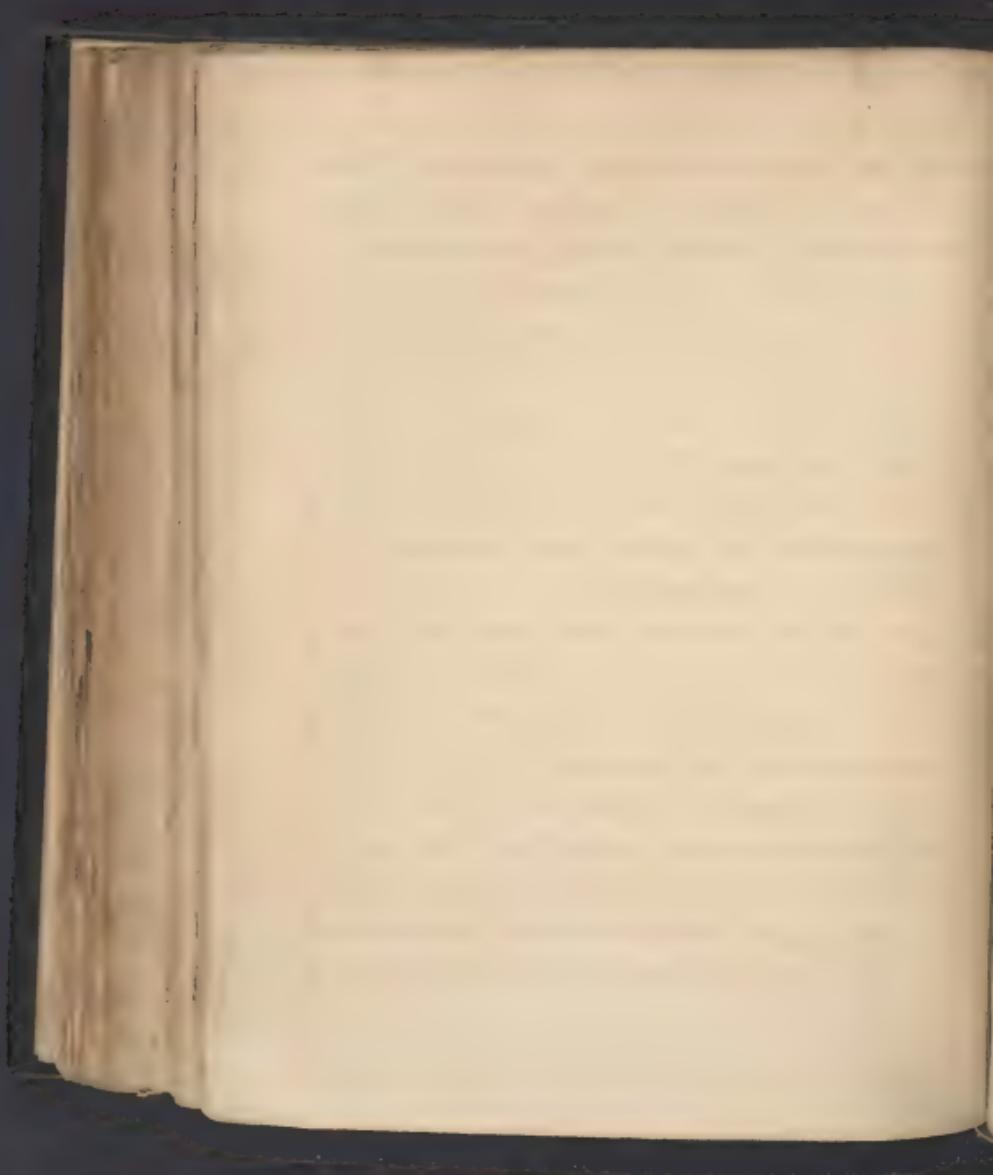


The nervous system of negroes who are more liable to this disease than whites is also peculiarly excitable. We see daily instances of particular nervous irritability; one man cannot endure a cat, another's teeth are set on edge by touching velvet, while a third ^{when} the bagpipe sings in the nose cannot contain his urine? Why should not the nerves of one individual be as susceptible of tetanus when as the ear of a musician is of harmony, or the eye of a painter of proportion. Cases continually occur in which without any apparent cause the slightest irritant produces Tetanus, when in others the most extensive lacerations are unattended with spasm. May not Tetanus in irritable subjects be induced by those injuries from amputation which in ordinary constitutions produce only spasms of the stump?

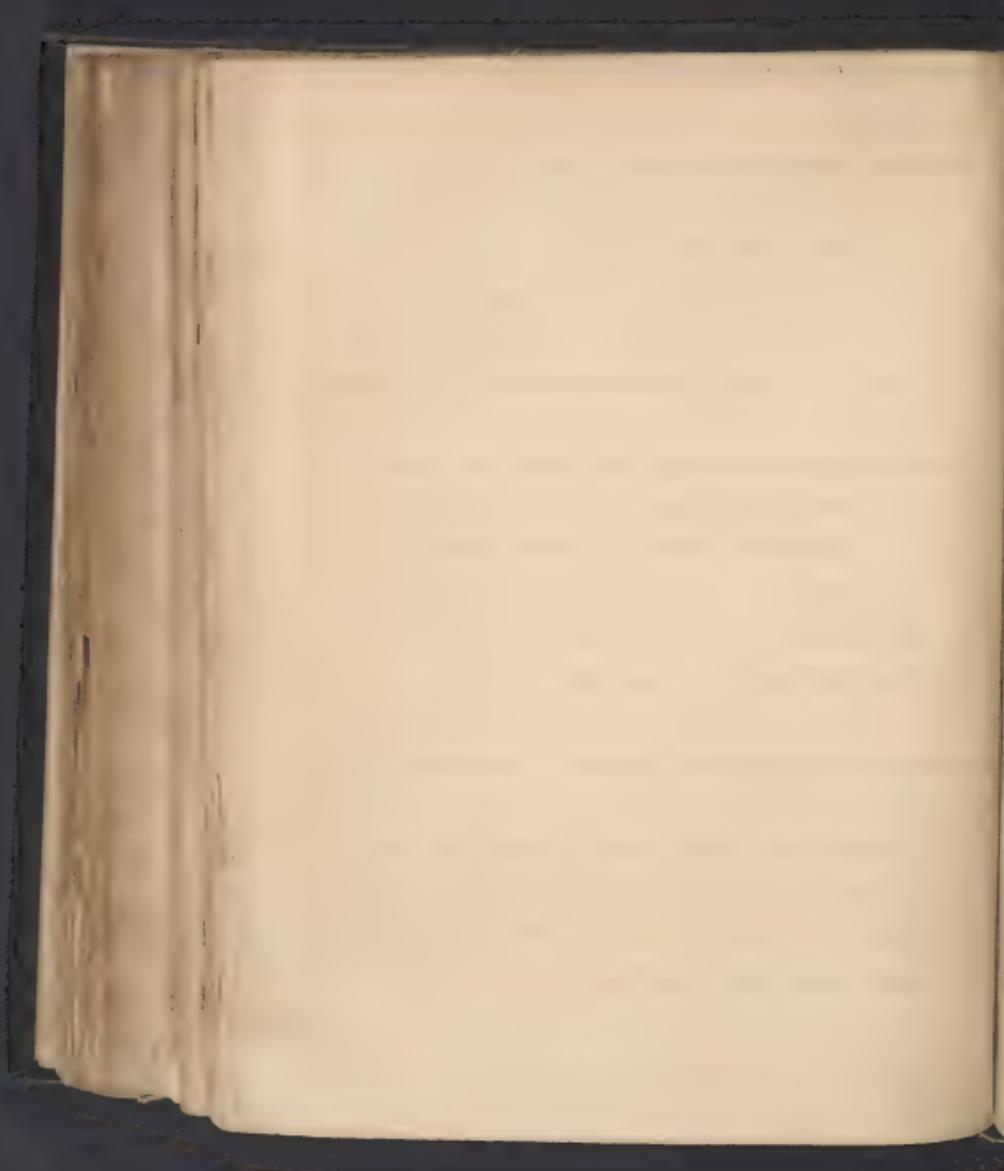
We shall divide the treatment into prophylactic or preventive, and that which is to be resorted to when the disease has appeared. The former must unavoidably be restricted in a great measure to those cases in which from peculiar circumstances we should anticipate



an attack of Tetanus as the result of some external injury.
In cases of punctured or lacerated wounds in very sensible
parts as the hands or feet or under tendinous fasciae, or in
any part where many nerves are situated, if occurring in
unable habily and in a hot climate Tetanus is to be feared.
But even with all these circumstances united the accept-
ion of the disease is so uncertain that we should scarcely
be justifiable in the adoption of prophylactic measures.
However where some premonitory symptoms have appeared
where we have great reason to expect an attack it
has been advised: 1st To mix opium with the dressings
of the wound; the present practice of the British Navy
2^d To excite counterirritation, or an action different from
that which results in Tetanus. For, ¹¹feet thus a variety
of measures have been proposed, where the wound has
healed, it has been recommended to dilate it and to
apply escharoticks, as the vegetable alkalilunar cau-
tick, ^{yes} to keep up irritation by stimulating applica-
tions and particularly the spirit of Turpentine.
Others have upheld a very different treatment.



and have applied emollient poultices. Believing however
that the presence of extraneous matter is often a cause
of the disease; and that the healing of the original
wound, may produce a degree of tension of the nerves
we should not hesitate to delineate freely. This would
seems warranted by those cases in which division of the
nerves removes nervous diseases arising from injury
of the head. 3 To delineate if practicable the trunks of
the nerves which supply the part, and thus to prevent
the propagation of the disease. As the nerves must be
the medium of communication whether direct or
symmetrically, this appears warrantable. In a case
of Bell's palsy which it was our misfortune to witness,
a wound on the top of the foot was the exciting cause.
The patient during the remission was perfectly sensi-
tive of the approach of spasm, and called loudly
for pressure to be made upon the ankle. A peculiar
sensation was in this case propagated from the
wound towards the trunk, when the spasmodic
action commenced, and this was in some degree



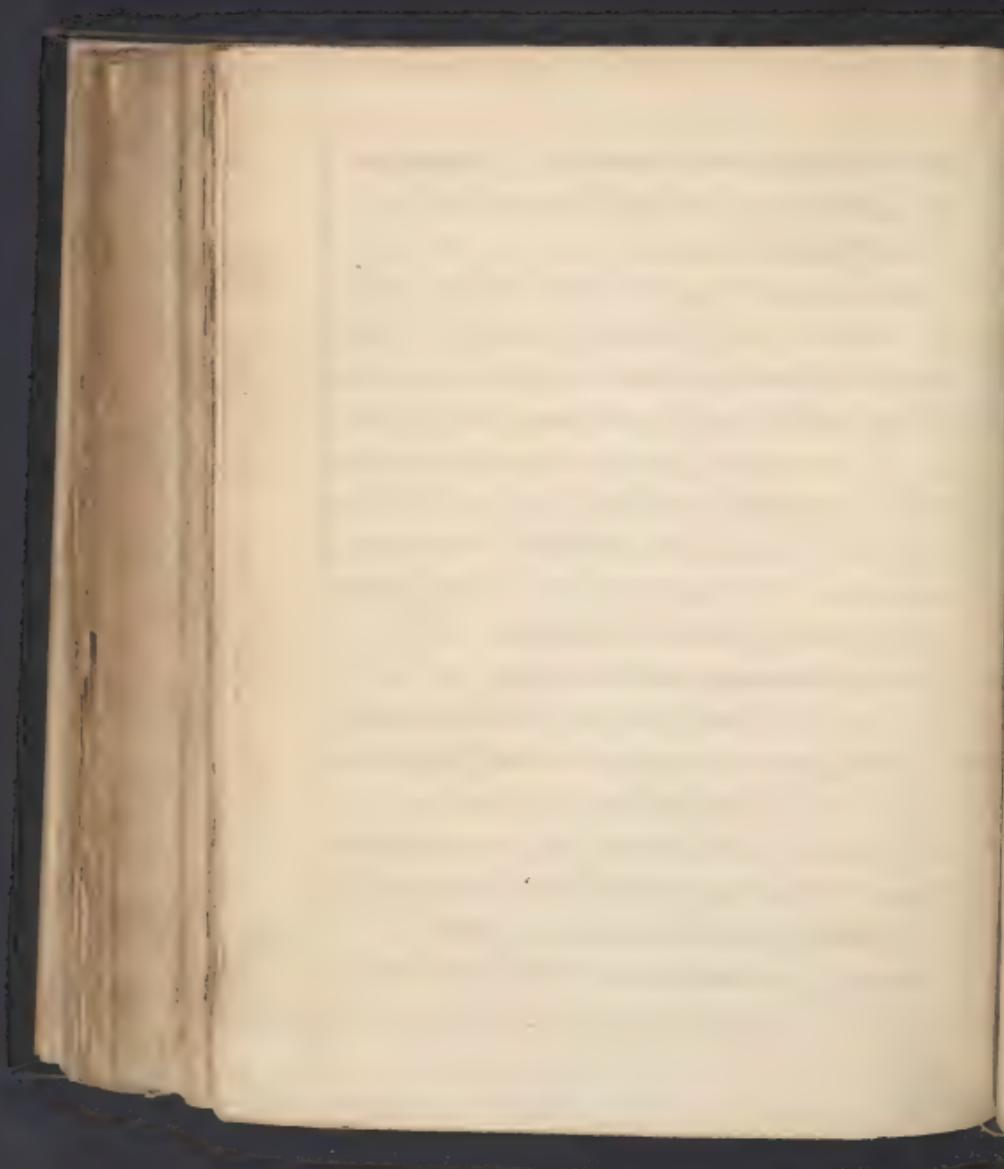
started by powerful purgative. Of the innumerable reme-
dies which have been used in this disease we shall only
notice a few, and of these the most active are undoubtedly
salts, &c. In Traumatical Petechia arising from a wound
of the limb it would surely be best to amputate im-
mediately. This is highly recommended by Dr. Saarby.
we found it succeed sometimes when all other means
had failed; and even when the case terminated fa-
tally the operation afforded great relief. In other cases
the wound should be laid open, and escharotick
applied. To the lancet as one of our most powerful wea-
pons we naturally resort in combating this dread-
ful disease, its efficacy in subduing irritation is un-
questionable, and where the state of the system will
permits it should be freely used. Perhaps the most
successful remedy that has been employed is opium.
It has been recommended to begin with small doses
which are to be gradually increased, but its effect
and no the quantity taken is to be considered, as easily
as related in which ounces have been given in twenty.



in our hours. Its combination with musk, camphor, ethis and other antispasmodicks have been thought to increase its effects. Dr Latham has recommended it in combination with *racemuanha* in Traumatik Potanizing. The alternate use of opium and carbonate of potash, in the hospitals of Germany was followed by the most happy effects instead of the internal use of opium Ward has highly recommended its external application, in the form of motion, alone or uncted with soap liniment. It has also been successfully administered in the rectum, and on account of the difficulty of deglutition these modes of exhibition may be used. With the liberal use, noatum of opium wine has been consoled, and attestations of the efficacy of the treatment are not wanting. Mercury has been much extolled in the treatment of Potanus but when successful opium or wine have generally been simultaneously given, besides this operation is often so slow and uncertain, that we can scarcely be warranted in trusting to this only. Among the most important remedies in



Itemus, the use of purgatives should not be overlooked, which is generally attendant on this disease, and its treatment should be commenced by the employment of these medicines. Tobacco has by some been prescribed with advantage, but it is too unmanageable, and its effects are so depressing that it could not easily be used long enough to make much impression on the system. Bark and Linenick may with propriety be employed, from their known efficacy in rheumatical diseases. The warm and cold bath have both been highly extolled commencing with the former. It has been recommended to try the Muriatic acid, and from the powerful effects of this article it seems deserving of notice. So many remedies for this disease have been strenuously advocated, that it would seem impudent that we should beat a tym; but unfortunately experience has sanctioned so few, that it is unnecessary to enlarge our catalogue. To the lancet then how much soever it has been neglected and despised we would give the precedence; to no remedy are we more indebted for the relief of pain



and the removal of morbid irritability. In a disease evidently inflammatory why should we be debarred from our most efficient resource. The known effect of opium in preparing the system, or the cure of other remedies is not the least powerful argument for its use. Is it not after the morbid action has been subdued by bloodletting, that we are to substitute that of opium? Free evacuation of the bowels and stomach by glysters and purgatives is next to be procured. Unquestionably, it is now that we are to anticipate the most successful results from the operation of opium. To the dose we can scarcely assign a limit; we should give it till a decided effect is produced upon the system, keeping the patient almost in a state of stupor. It has been urged against them remonstrance of opium, that few patients recover under its use. But we would ask, where are we to find a substitute? To what remedy is our confidence mainly due? To nothing but the most rational pathology supported by ample experience would we resign the only foundation on which we can stay.



our hopes. As more testimony appears in favour of wine
than of any other ally it should undoubtedly receive
our confidence. After the violence of the disease is in some
degree abated, tonicks should be employed, Bark, arsenic
and the vegetable bitters certainly claim our preference
Among this class of remedies the cold bath stands conspicuous.
The permanent effect of affusion in interrupting morbid con-
vulsions of action deserves our notice. As the patient is liable
to relapse every attention should be paid to the state of the
system, and he should be supported by nourishing diet.
Itanus it is to be feared will long remain an opprobrium
to our sciences. There is hardly a disease whose pathology
is so imperfectly ascertained, and whose treatment is so
unsatisfactorily defined. In this dilemma nothing remains
but the faithful employment of all our resources, and the
most powerful weapons should in succession be opposed to
so formidable an enemy. Then though every effort should
prove unavailing, we shall at least have the melan-
choly satisfaction of having done our duty.

